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TECHNICAL

MEMORANDUM

(TM Series)

Utility Program Descriptions	**SYSTEM**
Milestone 11	
Read Bird Buffer 1604 Transfer Tape (SRDTRK)	**DEVELOPMENT**
by	**CORPORATION**
R. C. Wise	**2500 COLORADO AVE.**
12 March 1963	**SANTA MONICA**
Approved	**CALIFORNIA**
J. B. Munson	

(

SUBROUTINE IDENTIFICATION

    A. Name: Read Bird Buffer 1604 Transfer Tape - (SRDTRK) Ident K36
              Mod AC

    B. Author: R. C. Wise, System Development Corporation - 18 January 1963

PURPOSE

    The function of SRDTRK is to read specific information from the 160A-1604
    transfer tape. The specific information is Tracking messages, or Vehicle
    time messages, or both types of messages and is related to a particular
    station, vehicle, and revolution.

USAGE

    A. Calling Sequence

        1. L   RTJ   SRDTRK   (calling sequence one)
                   F   I
            L+1 S   V
                      R
            L+2 ERROR RETURN
            L+3 NORMAL RETURN

        2. L   RTJ   SRDTRK   (calling sequence two)
                   F   I
            L+1 ERROR RETURN
            L+2 NORMAL RETURN

    B. Input Parameters

        The input parameters to SRDTRK are as follows:

        F   Function defines the operation of SRDTRK. "F" is in the lower
              opn field of word L.

             The values and meanings of "F":

Value	Meaning
0	Find the file defined by "S", "V", "R" and read the header into "I". If "R" is zero, find the next file of "V".
1	Read the next Tracking message of the present file into "I".
2	Read the next Vehicle Time message of present file into "I".
3	Read the next message of present file into "I".
4	Position the tape to end of data.

I Input buffer specifies the starting location of the users input area. "I" is in the lower address of word L.

The "S", "V", "R" parameters are used only with an "F" parameter of zero.

S Site code is the binary site number and is in the upper opn field of word L+1.

V Vehicle number is the 4 bit, BCD Vehicle Number and is in the upper B-term and M-term fields (18 bits) of L+1.

R Revolution Number is the 4 bit, BCD Revolution Number in tenths of a revolution and is in the lower instruction step (24 bits) of L+1.

C. The Bird Buffer to 1604 Transfer Tape
The transfer tape is a multi-file binary tape.

Each file consists of tracking and/or vehicle time messages, each message being an eight word record.

Each file pertains to a specific vehicle, station, and revolution
and is begun with a header record specifying these parameters.

D. Output Parameters

SRDTRK returns to the user program with the error codes in the Q-
register or normal codes in the A-register.

1. Error Codes

    Q = -2   read length error

    Q = -1   read parity error

    Q = 1   cannot find data requested

2. Normal Codes

    A = 0   message read

    A = 1   header read

    A = 2   no more data (EOF found)

E. Tape Assignment

SRDTRK uses tape 19, unit 4, cabinet 2 channel 5/6 for the Bird Buffer
to 1604 Transfer Tape.

OPERATING DESCRIPTION

SRDTRK is initially entered by the user program with calling sequence
one and an "F" (function) parameter of zero. SRDTRK will search the
transfer tape for a file with a header record that contains matching
information for the "S" (station), "V" (vehicle), and "R" (revolution
number) parameters. If "R" is zero, the match is attempted with "V" only.

If the tape is positioned at the end of all data, it will rewind to the first file of data before any operation is begun.

The header record is read into the input buffer specified by the "I" (input buffer) parameter and SRDTRK returns to the user program at L+3 with the A-register set to plus one.

Three errors could occur during the initial operation of SRDTRK; a persistent read length error, a persistent parity error, or the data requested could not be found. If an error does occur, an exit is made to L+2 of the user program with an error flag in the Q-register.

Subsequent entries to SRDTRK are made by the user program with calling sequence two. SRDTRK will read a record of the type requested by the "F" parameter. If an end of file is encountered while reading, a flag is set in the A-register an an exit is made to L+2 of the user program. A successful read also returns to L+2 in the user program with a flag in the A-register.

Error returns are made for persistent read length or parity errors.

The final entrance to SRDTRK must be made with calling sequence two and an "F" parameter of 4. This causes SRDTRK to position the tape to the end of data and release the interrupt disable which is set the first time SRDTRK is entered.

RESTRICTIONS

    A. Function 4 must be used.

    B. Interrupt is disabled and enabled by SRDTRK

    C. TAPE is used.

    D. The Bird Buffer to 1604 Transfer tape must be mounted on unit 19.

TIMING

    SRDTRK is dependent upon the timing of the 1607.

STORAGE

    160_8 cells

TRANSFER FUNCTION

Area	Operation
SRDTRK	Disable Interrupt
	Set up exit
	Is the tape at end of data?
	Yes - Go To TESTA1
	No - Continue
S1	GET Function parameter
	If "F" equal 4, go to POSEND
	If "F" equal 0, go to RD1
	Set up switch to read proper message tape.
	Activate tape checks.
	Go to RD2.
RD1	Set up parameters for search of proper header.
	Suppress tape checks.
RD2	If EOF, go to TESTA. Read one 8 word record, If looking for a message, to MESS.

Area	Operation

Is this a header?

      Yes - go to RD4

      No - go to PFILE

RD4   Do all parameters match with header?

      No - go to PFILE

      Yes - continue

If any tape errors, go to OUT.

EXIT   Set exit for normal return

OUT   Exit to user

TESTA   Looking for message?

      Yes - tape "no more data exit"

      No - continue

If this a double EOF?

      No - go to RD2

      Yes - continue

Was tape at load point or is "R" zero?

      Yes - take "cannot find data" exit.

      No - go to TESTA1

      go to RD2.

TESTA1   Rewind tape (TESTB)

TESTB   Rewind tape

MESS   Is this a header?

      Yes - take header found exit

      No - continue

Is this the type of message requested?

      Yes - go to EXIT

      No - go to RD2.

Area	Operation
PFILE	Read 1 record.
	Is it an EOF?
	Yes - go to RD2
	No - go to PFILE
POSEND	Read 1 record
	Is it an EOF?
	Yes - go to P3.
	No - go to P2.
P2	Read 1 record
	Is it an EOF?
	Yes - go to POSEND
	No - go to P2
P3	Set end of data flag.
P4	Tape good exit

VALIDATION TEST

A. Method

An ordered simulated transfer tape (CPDC S-422) containing 3 messages per revolution, 3 revolutions per site, 2 sites per vehicle, and 2 vehicles is operated upon by SRDTRK. The "V", "S", and "R" may be octal corrections to the test deck.

A driver requests the following of SRDTRK.

1. Position to file defined by V_1, S_2, R_1.
2. Read all tracking messages (one at a time).
3. Position to file defined by V_2, S_1, R_3.
4. Read all time messages (one at a time).
5. Position to file defined by V_1, S_2, R_3,
6. Read all messages.

7. Position to file defined by V_1

8. Read one tracking message.

9. Position to file defined by V_2, S_1, R_2.

10. Position to end of data.

All records read are printed on-line, and the listing is compared against the requested data.

B. Results

The messages were read as requested.

REFERENCES

TM-891/001/00, Combined Milestone 3/4 for the 1604 Augmentation Communication Programs, System Development Corporation, 20 December 1962.

AF/CPL number for program - 75936

AF/CPL number for Test Deck (TESTRD) - 809
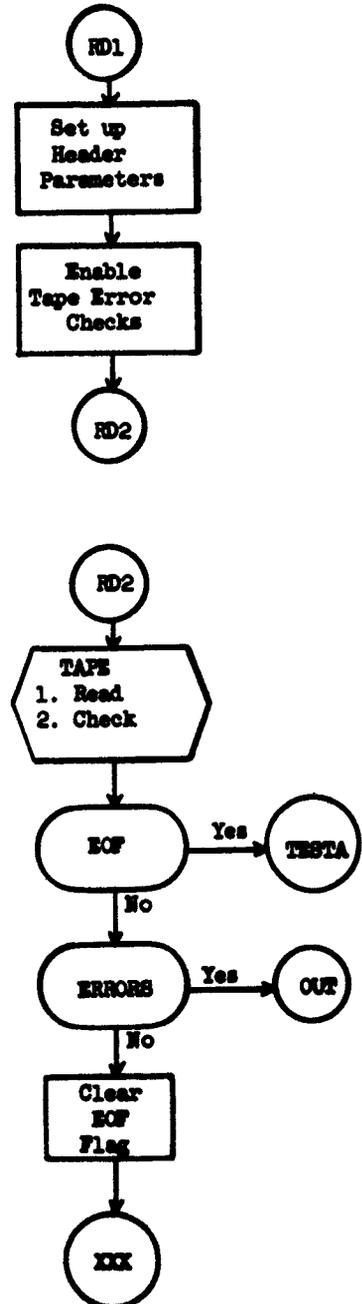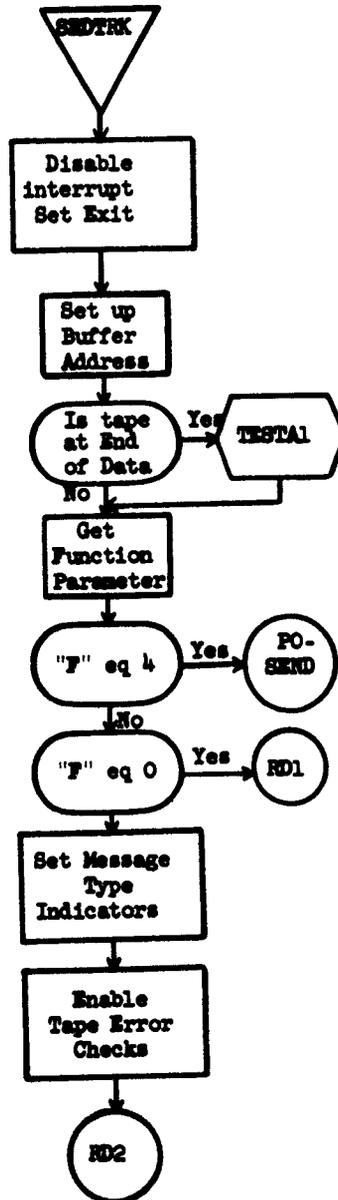
```
        ▽ SNDTRK

        ┌─────────────┐
        │  Disable    │
        │  interrupt  │
        │  Set Exit   │
        └─────────────┘

        ┌─────────────┐
        │  Set up     │
        │  Buffer     │
        │  Address    │
        └─────────────┘

         Is tape      Yes
         at End    ──────▶  TESTA1
         of Data
            No

        ┌─────────────┐
        │  Get        │
        │  Function   │
        │  Parameter  │
        └─────────────┘

         "F" eq 4     Yes
                   ──────▶  PO-
                            SEND
            No

         "F" eq 0     Yes
                   ──────▶  RD1
            ┃

        ┌─────────────┐
        │ Set Message │
        │    Type     │
        │  Indicators │
        └─────────────┘

        ┌─────────────┐
        │  Enable     │
        │ Tape Error  │
        │  Checks     │
        └─────────────┘

            RD2
```

```
            RD1

        ┌─────────────┐
        │  Set up     │
        │  Header     │
        │ Parameters  │
        └─────────────┘

        ┌─────────────┐
        │  Enable     │
        │ Tape Error  │
        │  Checks     │
        └─────────────┘

            RD2


            RD2

         TAPE
         1. Read
         2. Check

          EOF       Yes
                  ──────▶  TESTA
           No

         ERRORS     Yes
                  ──────▶  OUT
           No

        ┌─────────────┐
        │  Clear      │
        │  EOF        │
        │  Flag       │
        └─────────────┘

            XXX
```
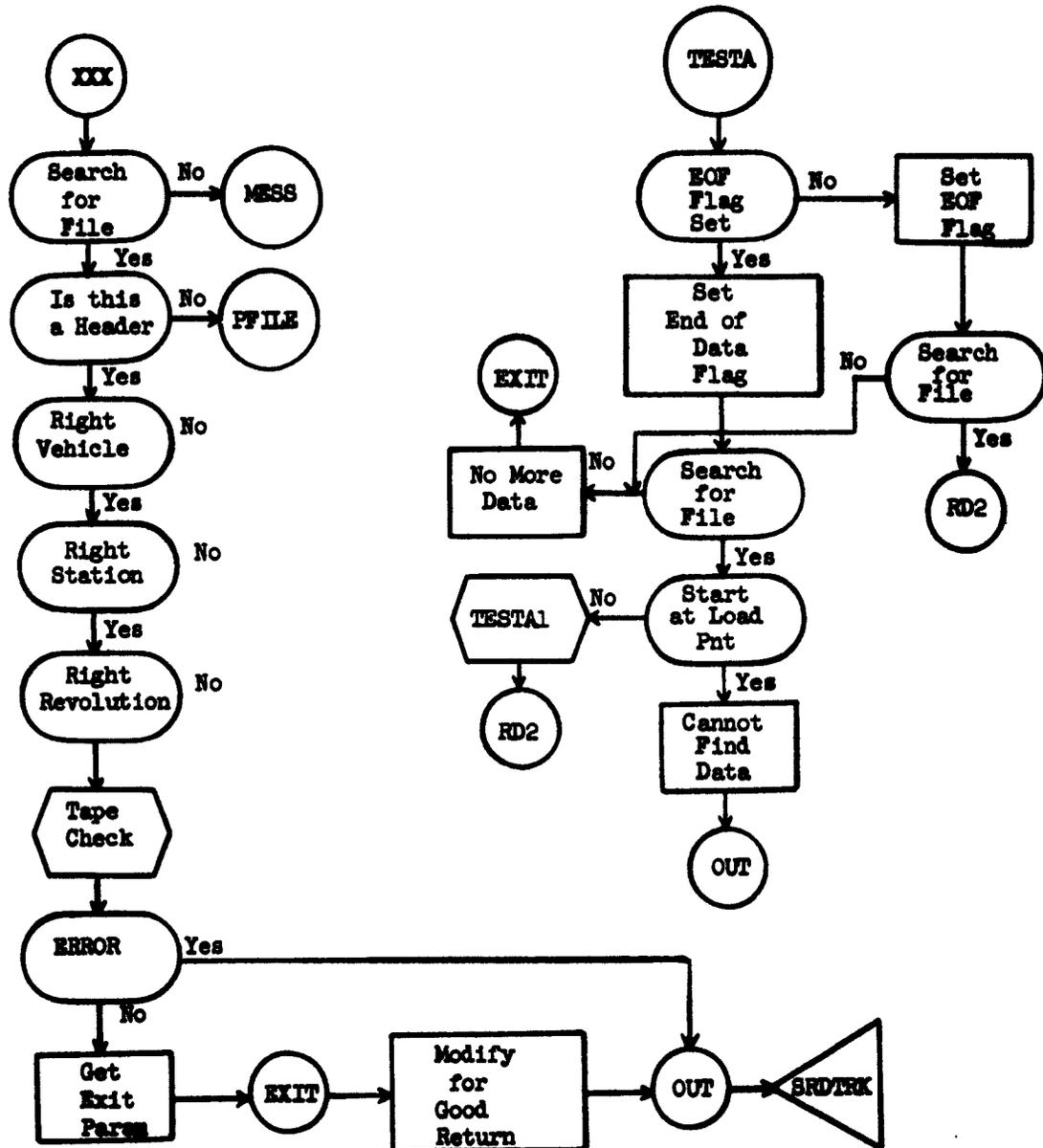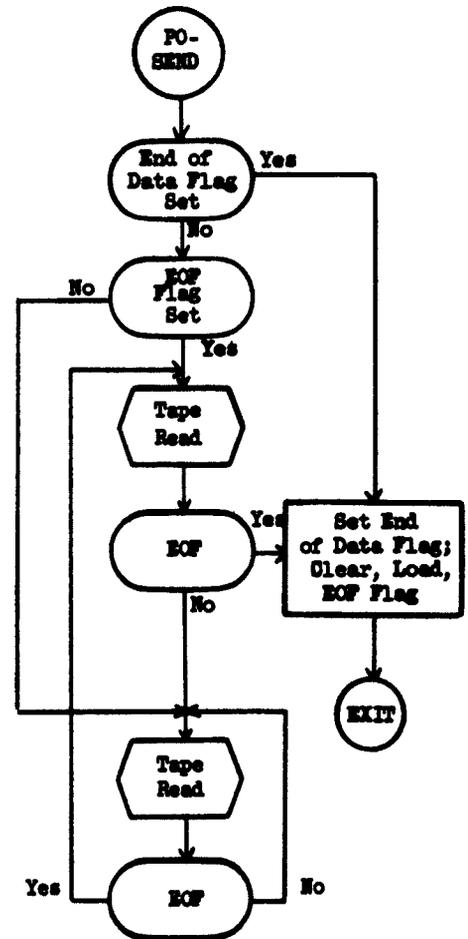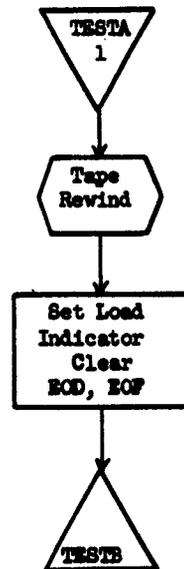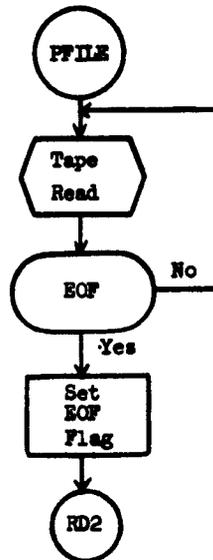
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Santa Monica, California
UTILITY PROGRAM DESCRIPTIONS
MILESTONE 11 READ BIRD BUFFER
1604 TRANSFER TAPE (SRDTRK).
Scientific rept., TM(L)-715/042/00,
by R. C. Wise.   12 March 1963, 11p.
(Contract AF 19(628)-1648, Space Systems
Division Program, for Space Systems
Division, AFSC)

Unclassified report

DESCRIPTORS: Programming (Computers).
Satellite Networks.

Reports that the function of SRDTRK
(Read Bird Buffer 1604 Transfer Tape)
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the 160A-1604 transfer tape. Also
reports that this specific information
is Tracking messages, or Vehicle time
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station, vehicle and revolution.